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INVENTION BACKGROUND DISCLOSURE

Inventor(s): Dr. David Opitz, Ph.D.

Title of Invention: A METHOD AND DEVICE FOR CREATING A SEQUENCE OF HYPOTHESES

1. Conception date (first day idea occurred to inventor):

December 1998

2. Data of first written description, sketch or drawing:

December, 1998

3. Date of first disclosure to others:

none

Identify witnesses:

Describe manner of disclosure:

4. When did work begin on a first model:

August 2000

5. Date of first test:

November 2000

Identify witnesses:

Stored on file as a backup disk at the University of Montana.

Describe tests:

Ran computer simulations on various data sets.

6. Describe any other tests, modifications, etc., (list dates, places, witnesses):

None.

7. Commercial practice - state when and where commercial use began, when models were offered for sale, details of all printed publicity:

No commercial use. Not offered for sale. Not printed publicly.

DUTY TO DISCLOSE:

Each individual involved in a patent application effort has a duty to disclose to the Patent and Trademark Office all known information material to the decision as to whether the invention is sufficiently unique to warrant a U.S. patent. Intentional withholding of material information may result in the patent being held invalid. This form is designed to help you record background information relating to the invention. Please use attachments as needed.

8. Identify any existing products previously made by you or others that are similar to this invention:

None.

9. Identify all written information, such as articles, advertisements, brochures, which describe products that are similar to this invention:

Similar patents:

| | | |
|-----------|-----------------|-------------------|
| 6,212,473 | Stefan , et al. | April 3, 2001 |
| 5,819,247 | Freund, et al. | October 6, 1998 |
| 5,946,675 | Sutton | August 31, 1999 |
| 5,222,197 | Teng , et al. | June 22, 1993 |
| 6,226,627 | Polak | May 1, 2001 |
| 5,699,449 | Javidi | December 16, 1997 |
| 5,201,026 | Tsuiki | April 6, 1993 |
| 6,175,643 | Lai , et al. | January 16, 2001 |
| 5,699,449 | Javidi | December 16, 1997 |
| 5,201,026 | Tsuiki | April 6, 1993 |
| 5,509,103 | Wang | April 16, 1996 |
| 6,035,057 | Hoffman | March 7, 2000 |

Similar publications:

H. Drucker, R. Schapire, P. Simard, "Boosting Performance in Neural Networks", International Journal of Pattern Recognition and Artificial Intelligence, vol. 7, No. 4 (1993) 705-719.

R. Schapire, "The Strength of Weak Learnability", Machine Learning, 5, 197-227 (1990).

Y. Freund, "Boosting a Weak Learning Algorithm by Majority", Proceedings of the Third Annual Workshop on Computational Learning Theory, Aug. 6-8, 1990.

H. Drucker, C. Cortes, L. D. Jackel, Y. LeCun, V. Vapnik, "Boosting and Other Machine Learning Algorithms", *Machine Learning, Proceedings of the Eleventh International Conference*, Jul. 10-13, 1994.

Bauer, E., and Kohavi, R. 1998. "An empirical comparison of voting classification algorithms: Bagging, boosting, and variants." *Machine Learning*.

Breiman, L. 1996. "Bagging predictors." *Machine Learning*. 24(2):123-140.

Freund, Y., and Schapire, R. 1996. "Experiments with a new boosting algorithm." In *Proceedings of the Thirteenth International Conference on Machine Learning*. 148-156. Morgan Kaufmann.

Hansen, L., and Salamon, P. 1990. "Neural network ensembles." *IEEE Transactions on Pattern Analysis and Machine Intelligence*. 12:993-1001.

Krogh, A., and Vedelsby, J. 1995. "Neural network ensembles, cross validation, and active learning." In Tesauro, G.; Touretzky, D.; and Leen, T., eds. *Advances in Neural Information Processing Systems*, volume 7, 231-238. Cambridge, MA: MIT Press.

Maclin, R., and Opitz, D. 1997. "An empirical evaluation of bagging and boosting." In *Proceedings of the Fourteenth National Conference on Artificial Intelligence*, 546-551. Providence, RI: AAAI/MIT Press.

Opitz, D., and Shavlik, J. 1996. "Actively searching for an effective neural-network ensemble." *Connection Science*. 8(3/4):337-353.

Shapire, R.; Freund, Y.; Bartlett, P.; and Lee, W. 1997. Boosting the margin: A new explanation for the effectiveness of voting methods. In *Proceedings of the Fourteenth International Conference on Machine Learning*, 322-330. Nashville, TN: Morgan Kaufmann.

I certify that this disclosure fairly represents all known background information.

Signature

Address

Date

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5/29/01

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